

COMMUNICABLE DISEASE CENTER

POLIOMYELITIS

SURVEILLANCE

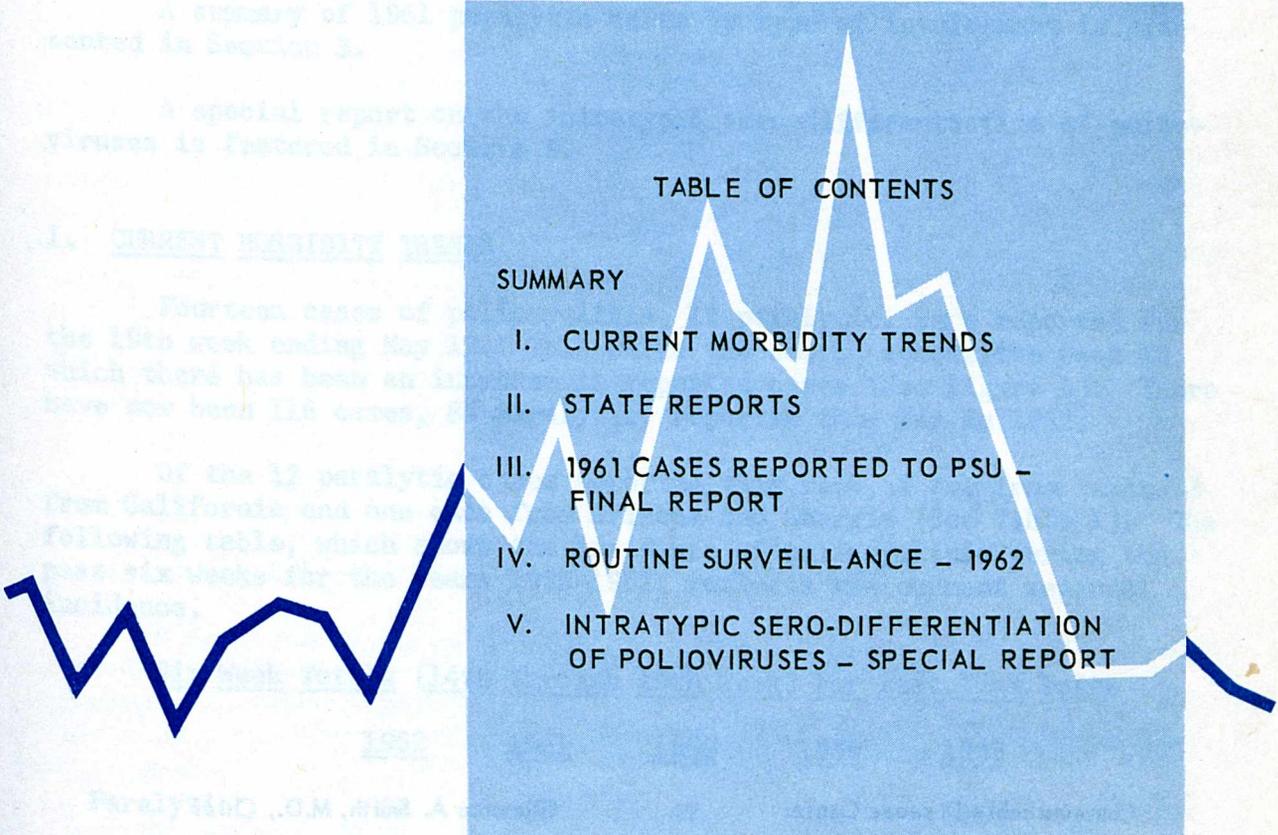


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OF POLIOVIRUSES – SPECIAL REPORT

U. S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE

PREFACE

Summarized in this report is information received from State Health Departments, university investigators, virology laboratories and other pertinent sources, domestic and foreign. Much of the information is preliminary. It is intended primarily for the use of those with responsibility for disease control activities. Anyone desiring to quote this report should contact the original investigator for confirmation and interpretation.

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SUMMARY

Fourteen cases of poliomyelitis, 12 paralytic, were reported for the 19th week ending May 12. This marks the second successive week in which there has been an increase in reported cases.

Seven of the 12 paralytic cases reported this week were from Texas. The concentration in South Texas has now reached 7 paralytic cases in Webb County, 6 paralytic cases in Bexar County and 3 paralytic cases in Hidalgo County. Narrative reports from Texas, California, and Arizona are included in Section 2.

A summary of 1961 paralytic cases by type of involvement is presented in Section 3.

A special report on the intratypic sero-differentiation of polioviruses is featured in Section 5.

1. CURRENT MORBIDITY TRENDS

Fourteen cases of poliomyelitis, 12 paralytic, were reported for the 19th week ending May 12. This marks the second successive week in which there has been an increase in reported cases (See Figure 1). There have now been 116 cases, 84 paralytic, reported thus far in 1962.

Of the 12 paralytic cases reported this week, 7 are from Texas, 3 from California and one each from Arizona and Georgia (See Table I). The following table, which shows the incidence of poliomyelitis during the past six weeks for the years 1958-1962, reflects the current seasonal incidence.

Six Week Totals (14th Through 19th Week) For Past Five Years

	<u>1962</u>	<u>1961</u>	<u>1960</u>	<u>1959</u>	<u>1958</u>
Paralytic	33	36	47	98	46
Total	41	43	65	149	100

Of the 84 paralytic cases reported thus far in 1962, 62 have had onset since January 1. These cases are shown by county of origin on the map on page 2. The concentration of cases in South Texas is evident. During the past six weeks, Texas has contributed one-half of the nation's paralytic cases (See Section 2).

2. REPORTS

A. Texas

Through May 12, a total of 27 cases, 24 paralytic, has been reported by Texas. This represents 39 percent of the paralytic cases with 1962 onset reported throughout the nation.

Nineteen of the paralytic cases and two deaths have been reported from South Texas counties thus far in 1962. According to Dr. Van C. Tipton, Director, Division of Communicable Disease Control, Texas State Department of Health, seven paralytic cases had been reported from Webb County (Laredo), six from Bexar County (San Antonio), three from Hidalgo County (McAllen), and one each from Cameron, Duval and San Patricio Counties. This concentration in South Texas is shown on the map on page 2. The detailed listing in Table 2A clearly indicates the involvement of unvaccinated Latin-American pre-school age children and infants. Disease onsets span the January-May period, but a build-up of cases in late April and early May is evident in Webb and Bexar Counties. Evidence of type I poliovirus infection has been obtained in two Webb County cases. In Bexar County, five of the six cases are confined to a localized area in southwest San Antonio.

Detailed population figures are presented in Table 2B, along with paralytic attack-rates for Webb, Bexar and Hidalgo Counties.

The seasonal pattern of paralytic poliomyelitis by month of report since 1957 is shown in Table 2C. Webb County has experienced little paralytic poliomyelitis during these past years, and in 1961 reported no cases. No outstanding seasonal differences have been discernible.

In more densely populated Bexar County, however, cases have occurred in greater numbers. Here a seasonal pattern paralleling the nationwide experience is evident with generally a steady build-up of paralytic case reports to a mid-summer peak. However, few cases have been reported in recent years.

The Hidalgo County experience in 1957 suggests an early summer peak, but the number of case reports is too small to detect seasonal differences.

More detailed data on 61 of the 65 cases reported during 1959-61 from Webb, Bexar and Hidalgo Counties are presented in Table 2D. These 61 cases are presented by age group and vaccination status as submitted on poliomyelitis surveillance case records. The predominance of unvaccinated pre-school age children is striking.

Table 2A

SOUTH TEXAS POLIOMYELITIS, 1962

<u>County</u>	<u>Age</u>	<u>Ethnic Group*</u>	<u>Sex</u>	<u>Onset Date</u>	<u>Vaccination Status (Salk)</u>	<u>Remarks</u>
Webb	8mo.	LA	F	3-3	OV	Type I sera rise
Webb	19mo.	LA	M	3-15	OV	Fatality
Webb	5yr.	LA	M	3-23	1V	Fatality
Webb	3yr.	LA	M	4-30	OV	
Webb	15mo.	LA	F	5-2	OV	Type I isolated
Webb	13yr.	LA	F	5-8	OV	
Webb	17yr.	LA	F	5-12	OV	
Bexar	31yr.	AA	M	3-11	OV	
Bexar	2yr.	LA	M	4-18	OV	
Bexar	9yr.	LA	M	4-25	OV	
Bexar	15mo.	LA	M	5-1	OV**	
Bexar	4yr.	LA	F	5-1	OV	
Bexar	6yr.	LA	F	5-4	OV**	
Hidalgo	10mo.	LA	F	1-12	OV	
Hidalgo	1yr.	LA	F	1-31	OV	Minor Involvement at 60 days
Hidalgo	19mo.	LA	M	Unk.	Unk.	
Cameron	6mo.	LA	F	1-29	OV	
Duval	Unk.	Unk.	Unk.	Unk.	Unk.	
San Patricio	1yr.	LA	F	12-31***	OV	Significant disability at 60 days

* LA-Latin American; AA-Anglo American

** Siblings

*** December 31, 1961 is the beginning of week 1 in 1962

PARALYTIC POLIOMYELITIS BY MONTH OF REPORT:
WEBB, BEXAR AND HIDALGO COUNTIES, TEXAS; 1957-62

Year	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec	TOTAL
1957	0	0	0	0	1	1	3	0	0	0	0	0	5
1958	2	1	0	0	0	0	0	0	0	0	0	0	3
1959	0	0	0	0	0	0	0	0	0	0	0	0	0
1960	0	0	0	1	0	0	0	0	0	0	1	0	2
1961	0	0	0	0	0	0	0	0	0	0	0	0	0
1962	0	0	1	0	0	0	0	0	0	0	0	0	1

Table 2B
PARALYTIC ATTACK RATES IN WEBB,
BEXAR AND HIDALGO COUNTIES, TEXAS
1962

County	Population (1960)		
	Total	Latin-American*	Anglo-American
Webb	64,971	51,784	13,007
Bexar	687,151	257,090	430,061
Hidalgo	180,904	---	---

County	Paralytic Cases			Attack Rate/100,000		
	Total	Latin-American	Anglo-American	Total	Latin-American	Anglo-American
Webb	7	7	0	10.8	13.5	0.0
Bexar	6	5	1	0.9	1.9	0.2
Hidalgo	3	3	0	1.7	---	---

* Represents persons of Spanish surname as shown in Table P-1 of U.S. Censuses of Population and Housing: 1960; PHC(1)-74 and PHC(1)-134

Table 2C

PARALYTIC POLIOMYELITIS BY MONTH OF REPORT:
WEBB, BEXAR AND HIDALGO COUNTIES, TEXAS; 1957-62

<u>Year</u>	<u>Jan</u>	<u>Feb</u>	<u>March</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug</u>	<u>Sept</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>	<u>TOTAL</u>
<u>WEBB COUNTY</u>													
1957	0	0	0	0	1	1	3	0	0	0	0	0	5
1958	2	1	0	0	0	0	0	0	2	0	0	0	5
1959	0	0	0	0	0	0	0	0	2	0	0	0	2
1960	0	0	0	1	0	0	0	1	1	0	1	0	4
1961	0	0	0	0	0	0	0	0	0	0	0	0	0
1962	0	0	1	2	4*								
<u>BEXAR COUNTY</u>													
1957	1	0	1	0	4	10	4	3	1	0	2	2	28
1958	0	0	0	3	4	9	14	8	9	4	1	3	55
1959	0	0	0	0	2	3	4	5	0	2	0	0	16
1960	0	0	0	2	0	0	1	1	1	2	6	3	16
1961	0	0	0	0	3	1	0	1	0	0	0	0	5
1962	0	0	1	1	4*								
<u>HIDALGO COUNTY</u>													
1957	0	1	4	8	10	2	2	1	0	0	1	1	30
1958	0	0	0	4	2	0	1	1	0	3	6	3	20
1959	0	2	0	4	1	0	2	1	0	1	0	0	11
1960	0	0	0	1	0	3	0	0	1	2	1	0	8
1961	0	0	0	0	0	0	0	0	1	0	2	0	3
1962	1	1	0	0	1*								

* Through May 12, 1962

The four cases reported from California during the week ending May 12, include three paralytic and one nonparalytic, all from different countries. According to Dr. Henry H. Coates, Poliovirus Surveillance Unit, California State Department of Public Health, seven of the ten paralytic cases reported thus far in 1961 have had onset since January. Two of these six cases have been reported as scattered in different countries.

Table 2D

**PARALYTIC POLIOMYELITIS BY AGE GROUP
AND VACCINATION HISTORY: WEBB, BEXAR
AND HIDALGO COUNTIES, 1959-61***

The case of paralytic poliomyelitis reported this week is from Phoenix, Arizona. According to Dr. Henry H. Coates, Poliovirus Surveillance Unit, California State Department of Health, six years old child who experienced onset of paralysis of the right arm and right leg. Further investigation is underway.

Age Group	Vaccination History				TOTAL
	OV	1-2V	3V	4+V	
0-4	4	0	0	0	4
5-9	1	0	0	0	1
10+	0	0	0	0	0
TOTAL	5	0	0	0	5

BEXAR COUNTY

During 1961, a total of 32 paralytic poliomyelitis cases were reported to the Bexar County Health Department. Sixty-five percent of the cases were reported for 1961.

Age Group	Vaccination History				TOTAL
	OV	1-2V	3V	4+V	
0-4	20	2	2	0	24
5-9	1	0	0	0	1
10-19	3	1	0	0	4
20+	3	0	0	0	3
TOTAL	27	3	2	0	32

Hidalgo County

In Table 2A, the cases presented by type of involvement and severity are shown. In Table 2B, the cases are presented by type of involvement and severity. In Table 2C, the cases are presented by type of involvement and severity. In Table 2D, the cases are presented by type of involvement and severity.

Age Group	Vaccination History				TOTAL
	OV	1-2V	3V	4+V	
0-4	19	2	1	0	22
5-9	1	0	0	0	1
10-19	1	0	0	0	1
20+	0	0	0	0	0
TOTAL	20	2	1	0	24

* As reported on Poliomyelitis Surveillance Forms

B. California

The four cases reported from California during the week ending May 12, include three paralytic and one nonparalytic, all from different counties. According to Dr. Henry Renteln, Chief, Poliomyelitis Surveillance Unit, California State Department of Public Health, seven of the ten paralytic cases reported thus far in 1962 have had onsets since January 1. Two of these are from Los Angeles County, and the rest are scattered in different counties.

C. Arizona

The case of paralytic poliomyelitis reported this week is from Phoenix. According to Dr. Philip Hotchkiss, Epidemiologist, Arizona State Department of Health, the patient is a six year old white male who experienced onset of disease on March 11, and subsequently developed paralysis of the right arm and leg. Preliminary epidemiologic investigation has revealed that he had received two doses of inactivated polio-vaccine (Salk). In addition, he had received type I oral poliovaccine (Sabin) in mid-January and type II in late February or early March. Further investigation is in progress, and virologic study of suitable specimens is underway.

3. 1961 POLIOMYELITIS REPORTED TO PSU - TYPE OF PARALYTIC INVOLVEMENT

During 1961, a total of 829 cases of paralytic poliomyelitis was reported to the Poliomyelitis Surveillance Unit (See PSU Report No. 254). Sixty-day follow-up reports were available for 778 of the 829 cases.

Thirty percent of the paralytic cases with known type of involvement were classified as having bulbar involvement as shown in Tables 3A and 3B. This marks the first presentation of paralytic cases by type of involvement in the Poliomyelitis Surveillance Report. However, 217 cases, or 28 percent, of the 778 cases were submitted with unknown type of involvement.

In Table 3A, the paralytic cases are presented by type of involvement and severity of paralysis. The proportion of cases with bulbar involvement ranges from 17 to 28 percent in the patients still living. In contrast, 93 percent of the fatalities were classified as having had bulbar involvement.

In Table 3B, the type of involvement is shown by age group. The proportion of cases with bulbar involvement clearly increases with age. Over one-half of the cases thirty years and older suffered this type of involvement.

Table 3A

TYPE OF INVOLVEMENT BY SEVERITY OF PARALYSIS

AT SIXTY DAYS*

1961

Severity of Paralysis	Type of Involvement				Total	Percent** with Bulbar Involvement
	Spinal	Bulbar	Bulbo-Spinal	Unk.		
Minor Involvement	133	22	12	70	237	20.4
Significant Disability	166	14	20	99	299	17.0
Severely Disabled	83	5	28	41	157	28.4
Fatality	5	37	29	6	77	93.0
Severity Unknown	5	1	1	1	8	--
Total	392	79	90	217	778	30.1

* Based upon cases reported to PSU with 60-day residual paralysis.

** Of those specified.

Table 3B

TYPE OF INVOLVEMENT BY AGE GROUP - 1961*

Age Group	Type of Involvement				Total	Percent** with Bulbar Involvement
	Spinal	Bulbar	Bulbo-Spinal	Unk.		
0-4	156	16	15	108	295	16.6
5-9	83	17	19	50	169	30.3
10-14	47	7	11	11	76	27.7
15-19	21	8	4	6	39	36.4
20-29	46	14	17	24	101	40.3
30-39	28	13	17	11	69	51.7
40+	11	4	7	7	29	50.0
Total	392	79	90	217	778	30.1

* Based upon cases reported to PSU with 60-day residual paralysis.

** Of those specified.

4. ROUTINE POLIOMYELITIS SURVEILLANCE - 1962

A. Cases With Onset Within 30 Days of Vaccination (Inactivated)

Through May 12, there have been no under-30-day cases (IPV) with onset in 1962 reported to the Poliomyelitis Surveillance Unit.

B. Cases With Onset Within 30 Days of Vaccination (Oral)

No cases of poliomyelitis with onset within 30 days of receiving oral vaccine have been reported to the Poliomyelitis Surveillance Unit during the week ending May 12, 1962. The 1962 total of under-30-day cases (OPV) remains at one (See PSU Report No. 254).

5. INTRATYPIC SERO-DIFFERENTIATION OF POLIOVIRUSES -- SPECIAL REPORT

Antigenic study of the type I viruses isolated from two Maricopa County (Arizona) patients (PSU Report No. 252) has been completed by Dr. James Nakano, CDC Enterovirus Unit. The results of these tests, employing both the modified Wecker¹ and McBride² techniques, indicate clearly that the virus strains from both children are "unrelated" to type I Sabin vaccine. The significance of these results is discussed in the following communication received from Dr. Henry Gelfand, Chief, CDC Enterovirus Unit.

The Enterovirus Unit of C.D.C. is prepared to perform a limited number of tests upon typed polioviruses isolated from paralytic patients whose disease is considered to have some temporal and epidemiologic relationship to the use of oral polio vaccine. However, the limitations of these tests for the solution of problems of vaccine-illness association must be understood. During the first week after vaccination, type I virus strains recovered from almost all persons have characteristics which clearly relate them to the vaccine. Conversely, nearly all "wild" type I polioviruses have characteristics which clearly differentiate them from the vaccine strain. However, during the second and subsequent weeks after vaccination, an increasing percentage of vaccine-derived strains demonstrate antigenic "drift," with test values which would place them into "intermediate" or even "vaccine-unrelated" categories. Interpretation is therefore dependent in part upon temporal factors, and strains recovered from vaccinee-contacts are particularly difficult to classify since the exact date of possible vaccine virus infection is unknown. Interpretation would be helped by having data on the characteristics of poliovirus strains prevalent in the same area prior to the administration of oral vaccine.

It must also be pointed out that if live-virus vaccine is administered to an individual infected at the time with a "wild" enterovirus of another type, the vaccine strain may displace the "wild." A virus isolate of vaccine character may, therefore, be unrelated to the patient's illness.

It is obvious, therefore, that antigenic strain study alone will often not provide clear-cut answers to questions of the association of oral polio vaccination and subsequent disease. The results of such tests may, however, provide evidence which can be added to other laboratory and epidemiologic data in an attempt to resolve questions of that nature. There has been much less experience with antigenic strain differences among type III polioviruses and almost none with type II. Interpretation of tests with these latter types must be provisional.

If antigenic strain study is desired by the laboratory of a State Department of Health, the typed isolates should be sent directly to Enterovirus Unit, C.D.C., together with the following information about the patients:

1. Name, age, sex, race, residence
2. Diagnosis, dates of onsets of first symptoms and CNS signs
3. Dates specimens collected
4. Results of clinical and virologic laboratory studies
5. Dates of oral and Salk vaccines received by patient, family and community
6. History of contact, travel, unusual activities

Enterovirus Unit will assign the priority for study and will report results as soon as possible, both to the laboratory making the request and to the Poliomyelitis Surveillance Unit for publication in its reports.

1. Nakano, J.H. and Gelfand, H.M., Am. J. Hyg. Vol. 75, to appear in May 1962 issue.
2. McBride, W.D. Virology 7:43-58, 1959

Figure 1 CURRENT U.S. POLIO INCIDENCE COMPARED WITH YEARS 1957, 1959, and 1961

DATA PROVIDED BY NATIONAL OFFICE OF VITAL STATISTICS
AND COMMUNICABLE DISEASE CENTER

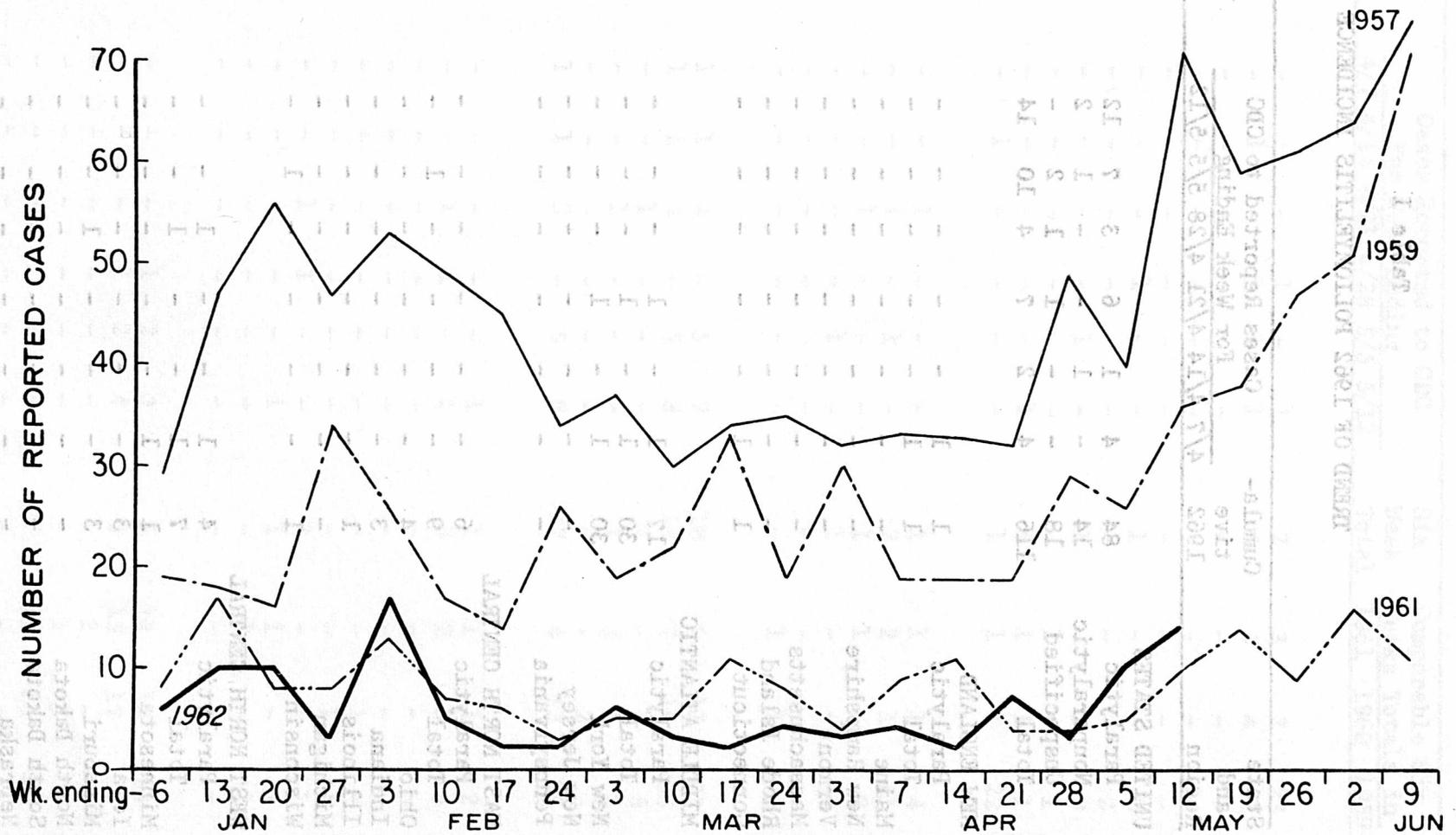


Table I (Continued)

State and Region	Cumulative 1962	Cases Reported to CDC For Week Ending						Six Week Total	Comparable Six Weeks Totals in		
		4/7	4/14	4/21	4/28	5/5	5/12		1961	1960	1959
SOUTH ATLANTIC											
Paralytic	7	-	-	-	1	-	1	2	3	2	23
Total	9	-	1	-	1	1	1	4	3	4	31
Delaware	-	-	-	-	-	-	-	-	-	-	-
Maryland	-	-	-	-	-	-	-	-	-	-	-
D. C.	-	-	-	-	-	-	-	-	-	-	-
Virginia	2	-	-	-	1	-	-	1	-	-	2
West Virginia	-	-	-	-	-	-	-	-	-	-	2
North Carolina	2	-	-	-	-	1	-	1	-	2	3
South Carolina	1	-	-	-	-	-	-	-	1	-	1
Georgia	2	-	-	-	-	-	1	1	1	1	1
Florida	2	-	1	-	-	-	-	1	1	1	22
EAST SOUTH CENTRAL											
Paralytic	3	-	-	1	-	-	-	1	1	1	4
Total	5	-	-	1	-	1	-	2	2	1	11
Kentucky	1	-	-	1	-	-	-	1	1	-	2
Tennessee	2	-	-	-	-	1	-	1	-	-	4
Alabama	-	-	-	-	-	-	-	-	-	-	-
Mississippi	2	-	-	-	-	-	-	-	1	1	5
WEST SOUTH CENTRAL											
Paralytic	30	1	1	4	-	5	7	18	6	12	23
Total	33	1	1	4	-	5	8	19	7	16	33
Arkansas	1	-	-	1	-	-	-	1	-	-	5
Louisiana	5	-	-	1	-	-	-	1	3	1	2
Oklahoma	-	-	-	-	-	-	-	-	-	2	-
Texas	27	1	1	2	-	5	8	17	4	13	26
MOUNTAIN											
Paralytic	5	-	-	-	-	-	1	1	1	1	2
Total	8	-	-	1	1	-	1	3	2	3	5
Montana	2	-	-	-	-	-	-	-	-	-	-
Idaho	-	-	-	-	-	-	-	-	-	-	-
Wyoming	-	-	-	-	-	-	-	-	-	1	-
Colorado	-	-	-	-	-	-	-	-	-	1	1
New Mexico	2	-	-	1	1	-	-	2	-	1	1
Arizona	3	-	-	-	-	-	1	1	1	-	1
Utah	1	-	-	-	-	-	-	-	1	-	2
Nevada	-	-	-	-	-	-	-	-	-	-	-
PACIFIC											
Paralytic	11	-	-	-	1	2	3	6	14	15	23
Total	14	-	-	-	1	2	4	7	15	17	26
Washington	-	-	-	-	-	-	-	-	2	-	1
Oregon	-	-	-	-	-	-	-	-	1	1	4
California	13	-	-	-	1	2	4	7	11	15	20
Alaska	-	-	-	-	-	-	-	-	-	-	-
Hawaii	1	-	-	-	-	-	-	-	1	1	1
TERRITORY											
Puerto Rico	5	2	-	-	-	-	-	2	1	80	-

